FIELD NOTES 2025

Words from our CEO Martin Schaefer

Endangered Red-faced Parrot *(Hapalopsittaca pyrrhops)*
Ridgely Reserve
Photo credit: Afuera Producciones

2025 ANNUAL LETTER

Dear Friends,

High above me, in the canopy of the Chocó rainforest, endangered Brown-headed Spider Monkeys are putting on a show. They are aggressively shaking the branches and throwing some of them, down on us, the intruders. Their boldness testifies that they are not being hunted. It testifies that you have succeeded in protecting threatened biodiversity and irreplaceable nature, along with us. I am deeply grateful for that.

Across the world, governments are hollowing out environmental protection and eroding civic space. New laws and policies make it more difficult to protect nature. Funding for conservation is dwindling. Grants to Jocotoco from the United States government have been cut. Budget deficits in Ecuador mean fewer resources for national parks and communities.

Right now, Jocotoco must play an even more critical role in safeguarding the natural world. Together with you, we are up for the challenge.

Our work is guided by two connected pillars that make us resilient: local leadership and science.

Local Leadership: We don't just work with communities in Ecuador, we are an integral part of those communities. By owning and directly managing nature reserves, we make decisions from the ground up, rather than from a distant office in a far away country.

Science: Scientists conduct groundbreaking research at our reserves. This year alone, 25 peer-reviewed articles by our own staff and third-party researchers have been published about the ecosystems we protect.

We deploy and develop advanced technology to accomplish our work. Bioacoustic recorders, camera traps, infrared drones, eDNA, and AI help us monitor wildlife and detect threats to protected areas. These tools allow us to efficiently scale our impact from local to regional. From the beginning of 2025 through the end of 2026, we will have monitored biodiversity on 1,590,235 hectares (3,930,000 acres), a feat impossible to accomplish without advanced technology.

When you protect ecosystems with Jocotoco, those ecosystems are truly safeguarded against threats. You bring endangered species back from the brink. You buffer massive national parks from illegal logging and poaching. You create connected corridors across vast landscapes allowing wildlife to move around and adapt to a changing climate. And you ensure that communities benefit from conservation and make decisions about their own future.

Together with you, we have created a model for conservation that will be replicated across Ecuador and beyond.

Will you give to Jocotoco today and step up when others are stepping down?

Critically Endangered Brown-headed Spider Monkey *(Ateles fusciceps fusciceps)*
Canandé Reserve
Photo credit: Scott Trageser

WHEN JOCOTOCO PROTECTS LAND, NATURE BOUNCES BACK

The concentration of biodiversity is greater in Ecuador than almost anywhere else on the planet. While the much larger Brazil is considered to be the most biodiverse country in terms of total species, Ecuador has 27 times more species of birds per square mile than Brazil, and 17 times more amphibians, reptiles, mammals, and vascular plants per square mile.

Since 1970, the world has lost at least 38% of its wildlife. Ecuador is at the epicenter of this trend. Ecuador had the highest rate of deforestation of any country in South America during the 20th Century. Ecuador now ranks second among all countries in the number of threatened species. If we continue on the same downward curve, countless species will disappear. We will lose unique evolutionary lineages and with them the solutions that nature provides — opportunities for new medicines derived from plants in the forest, improved aerodynamic designs for planes and trains based on the wings of falcons, or natural solutions to oil spills and even climate change.

A long-term research project called Reassembly at our Canandé Reserve in the Ecuadorian Chocó shows that it is in our power to not only stop this decline, but to reverse it.

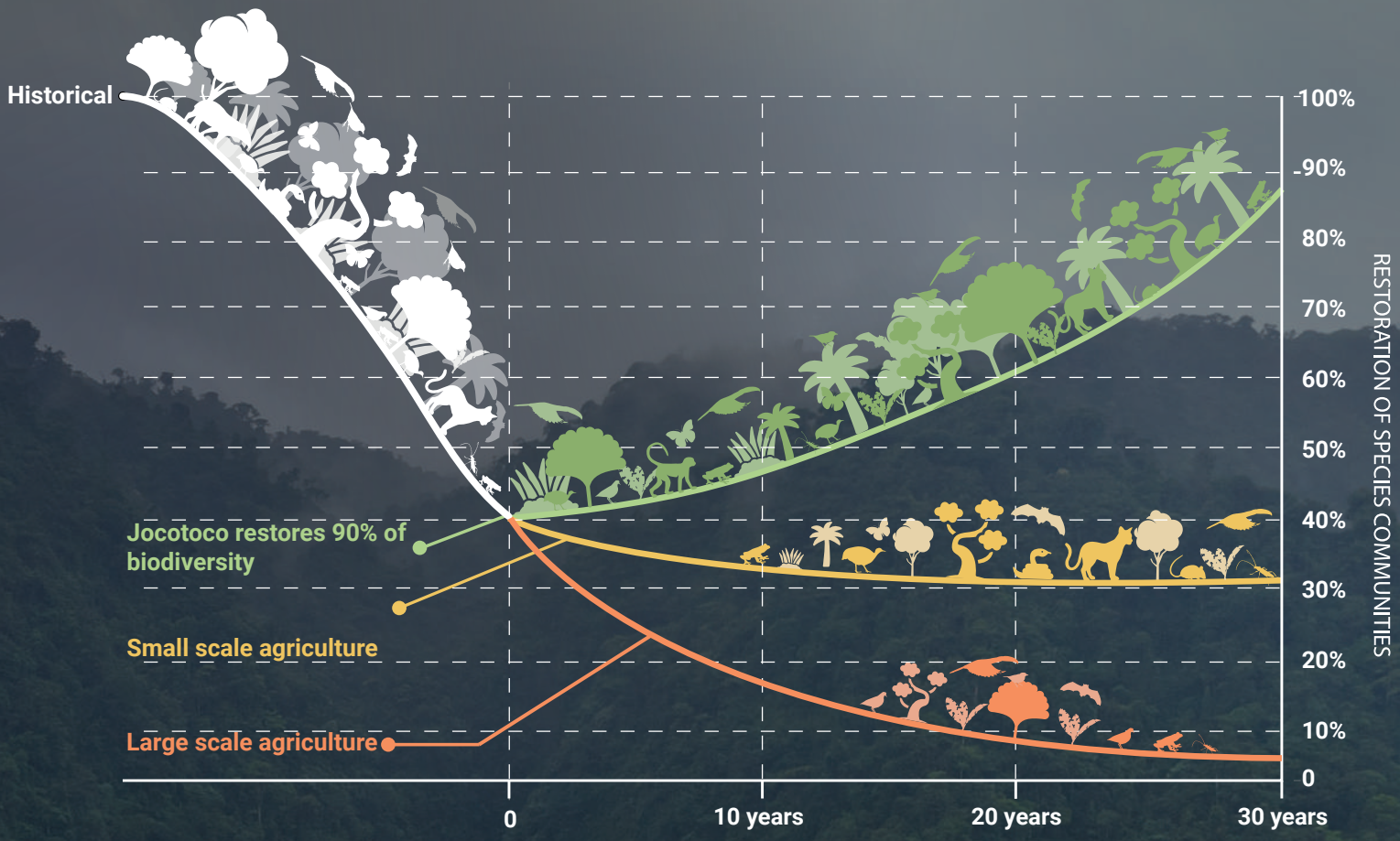
Canandé encompasses nearly 19,000 ha (more than 46,000 acres) of lowland rainforest. It is our largest reserve. Each year we expand the reserve. We acquire intact forests, but we also buy land that has already been cleared for pastures or cacao.

Scientists have found that abandoned pastures and cacao farms can recover much of their wildlife within only 30 years. After nearly three decades of protection, forests in Canandé have recovered 90% of the biomass — the weight of all animals — and 90% of the number of species found in mature forests. While the new mix of species is not fully the same as in a mature forest — new species that are typical of secondary forests and edges are now present — 75% of the original species present in an old-growth forest have returned. These forests recovered on their own, simply by our protecting the land.

At Canandé, to date we have documented 533 species of birds, 101 species of reptiles, 99 species of mammals, 80 species of amphibians, and 995 species of plants. If the reserve had not been protected and had transitioned to small-scale agriculture, we would have lost two-thirds of those species. If that land had transitioned into large-scale agriculture — vast monocultures of oil palms or cattle ranches — we would have lost nearly all of those species.

Canandé is home to:

- Part of the only viable population of Jaguar *(Panthera onca)* in western Ecuador.
- Part of the last known population of Great Curassow *(Crax rubra)* in all of Ecuador.
- More than 80% of the global population of a critically endangered subspecies of Brown-headed Spider Monkey (*Ateles fusciceps fusciceps*).
- All of Ecuador's known critically endangered Horned Marsupial Frogs *(Gastrotheca cornuta)*.



Scientists have used new technologies, including AI, bioacoustic monitoring, and eDNA, to make these findings. Local leaders — our reserve staff at Canandé — figured out how to apply this information to improve strategies to protect the wildlife in Canandé.

This proves that you do have an impact. Even where wildlife has already been decimated, it is not too late to ***bend the curve*** towards a healthy ecosystem.

Jocotoco's network of reserves now covers 48,000 ha (118,000 acres). Through active restoration and natural regeneration, our reserves contain 3,000 ha (7,000 acres) more vegetation cover now than when they were originally protected. That's the equivalent of 4,200 soccer pitches or 5,300 American football fields of regrown forests.

Cloud forest landscape
Canandé Reserve
Photo credit: Javier Aznar

COMBINING LOCAL LEADERSHIP, SCIENCE, AND ADVANCED TECHNOLOGY TO SAVE THREATENED SPECIES

Endangered species need targeted strategies in order to recover. Scientific research uncovers mysteries of their decline and threats to their survival. Technology helps us document these species and track changes in populations over time. Local staff lead the work, gather data, and adapt our conservation strategies based on their on-the-ground knowledge.

The endangered El Oro Parakeet *(Pyrrhura orcesi)*, endemic to foothill cloud forests in southwest Ecuador, was first described in the 1980s. Global populations are now estimated to be only 600 individuals, representing a rapid decline in recent decades due to the loss of mature trees with natural nesting cavities. We created the Buenaventura Reserve to safeguard the El Oro Parakeet in 1999, and we have continued to expand the reserve ever since.

Buenaventura's park guards maintain many nest boxes; an average of 100 El Oro Parakeets fledge from them each year. We will more than double the number of nest boxes by 2032. Because species like the El Oro Parakeet are pushed uphill by climate change, since the beginning of 2024, we have planted more than 33,000 young trees at the upper elevations of the reserve, restoring more than 50 ha (125 acres) of former cattle pastures. By planting a diversity of native trees that support forest succession, and by maintaining the trees after they are planted, we have a tree survival rate of more than 77% after the first year. We will continue planting trees in 2026.

The results of our strategy are stunning. Buenaventura is now home to nearly half of the global population of El Oro Parakeet. While populations continue to decline outside of the reserve, populations within the reserve are stable and even growing.

We now hope to have similar success with the critically endangered Blue-throated Hillstar *(Oreotrochilus cyanolaemus)*. This hummingbird was first discovered in 2017 in the windswept páramos high up the mountains near Buenaventura. We quickly created the Cerro de Arcos Reserve to protect its habitat. Current estimates suggest that there are only 80-110 mature individuals of the hummingbird left. Up to 40% of that population is in our reserve.

To restore populations of the Blue-throated Hillstar, we have to restore its habitat, both on the reserve and on communal lands around the reserve. The hummingbird's main nectar source, a flowering shrub called *Chuquiraga jussieui*, has been reduced by overgrazing and intentional burning to maintain pastures. This year we planted more than 35,000 *Chuquiraga jussieui* and other páramo plant species and restored 169 ha (417 acres) of habitat. Since the Blue-throated Hillstar nests in caves, and the number of caves near healthy habitat is limited, our conservation staff and park guards began testing multiple homemade models of artificial nesting boxes this year. We will continue to expand the reserve, restore habitat, and modify our nesting boxes in 2026.

Endangered El Oro Parakeet *(Pyrrhura orcesi)*
Buenaventura Reserve
Photo credit: Javier Aznar

Critically Endangered Blue-throated Hillstar
(Oreotrochilus cyanolaemus)
Cerro de Arcos Reserve
Photo credit: Javier Aznar

JOCOTOCO'S WORK EXTENDS TO RESTORING THREATENED SPECIES OF PLANTS AS WELL

An endemic magnolia in the Chocó, *Magnolia dixonii*, was once feared to be extinct owing to rapid deforestation. This massive tree can tower 60 meters (200 feet) into the canopy. It was rediscovered in 2017, and it was downlisted from critically endangered to endangered this year. This downlisting was a result of extensive surveys that identified more mature individuals than previously known in our Canandé Reserve and surrounding forests. It was also the result of our propagation efforts that added nearly 1,300 saplings to our reserve. We hope to have the same results with another critically endangered magnolia, *Magnolia canandeana*, in coming years.

In southern Ecuador, in our mini lab and greenhouse in Tapichalaca, Fanny Hidalgo leads groundbreaking work to propagate rare orchids and other plants that have declined because of poaching and deforestation. This region is renowned for having one of the greatest concentrations of orchid species in the world. In fact, we have identified 168 species of orchids within the reserve itself, and the list grows every year. Over the last two years, Fanny has developed methodologies to germinate nine species, including four orchids. With the local team of park guards we have added more than 2,200 rare plants back to Tapichalaca's forest and buffer zones. This is crucial, as collectors remove orchids throughout Ecuador. The team's goal is to propagate and replant 2,500 rare plants next year.

Endangered *Magnolia dixonii*
Canandé Reserve
Photo credit: Álvaro Pérez

Park ranger from the Canandé Reserve monitoring *Magnolia dixonii* trees
Canandé Reserve
Photo credit:Tinku Kollektiv

RESERVES ANCHORING LANDSCAPE CONSERVATION

The Chocó, stretching from Panama through Colombia and into Ecuador, is one of the most biodiverse places in the world. Unfortunately, rapid deforestation threatens the wildlife and people living there. Even national parks face illegal deforestation. To address this threat, we assembled a coalition of 11 Ecuadorian community and conservation organizations called the Chocó-Andes Network to protect 500,000 ha (1.2 million acres) across a 5-km (3-mile) altitudinal gradient.

The Chocó-Andes Network was an immediate success. During its first phase, EcoMinga enrolled 1,000 ha (2,500 acres) in the national system of protected areas, giving that private reserve the highest level of protection possible in Ecuador. CONDESAN created a new 10,000-ha (25,000-acre) municipal conservation area (ACUS). Jocotoco expanded our automated monitoring system from the lowland rainforests to the high Andean mountains to identify threatened biodiversity and measure how species respond to the protection of the Chocó-Andes Network. AI also allows us to detect threats in remote landscapes.

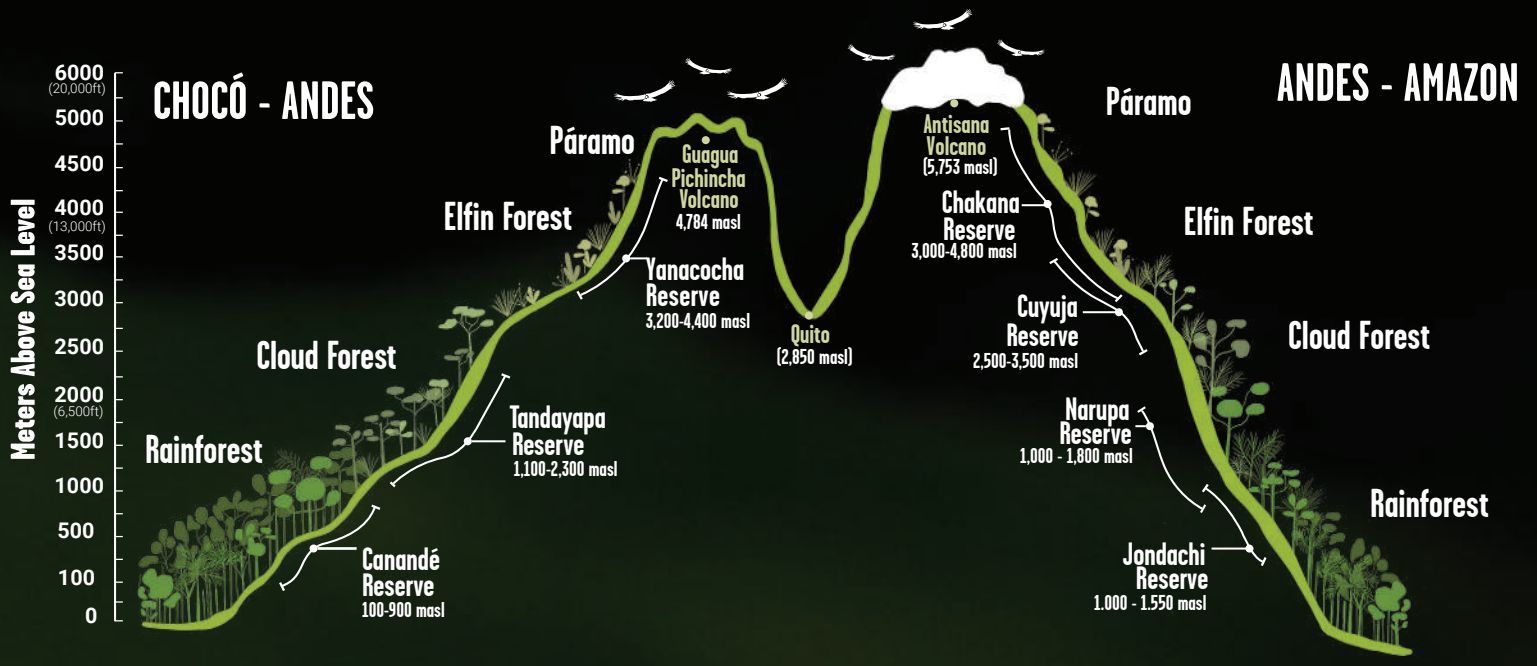
The second phase will focus on expanding reserves, improving reserve management, restoring ecosystems, and developing sustainable financing for conservation.

In 2025, we expanded the Canandé Reserve by nearly 1,000 ha (2,500 acres).

Nice-eyed Glass frog *(Espadarana callistomma)*
Canandé Reserve
Photo credit: Amanda Quezada

FROM CHOCÓ-ANDES TO ANDES-AMAZON

Mirroring this approach on the other side of the Andes, our Andes-Amazon program spans from the páramos and glaciers at the top of the eastern Andes all the way down to winding rivers in the Amazon basin. The Andes-Amazon program aims to protect more than one million ha (2.5 million acres) by strengthening the buffer zone around three national parks: Cayambe-Coca, Sumaco-Napo-Galeras, and Antisana. We will expand and create new private reserves. Our local team will help mestizo and indigenous communities expand, create, and manage their communal reserves. With improved management, agricultural areas can become more productive and provide habitat for wildlife. And we will support sustainable livelihoods in the region to reduce the need to clear forests to generate income.



Jocotoco's reserves span most of the elevational range of the northern Andes.

BEYOND OUR RESERVES: REWILDING FLOREANA ISLAND

On Floreana, a monumental effort is underway to remove introduced predators, like rats and mice, and reintroduce 12 endemic species that became extinct locally. The project is led by the Galápagos National Park, the Galápagos Biosecurity Agency, and co-executed by Jocotoco, Island Conservation, and Charles Darwin Foundation, with technical and scientific support from Re:wild and other national and international institutions. Together, we will restore the ecosystems and wildlife of an entire island to what Darwin experienced nearly 200 years ago.

We recently accomplished a significant milestone. After more than a decade in the making, we conducted intensive invasive predator control in late 2023. While eradication efforts continue, wildlife is already rebounding.

One of the most incredible discoveries came earlier this year: Wilson Cabrera, a Jocotoco field technician, heard a song that no one had heard on Floreana since Darwin himself in 1835 — the unmistakable sharp rattling of a Galápagos Rail *(Laterallus spilonota)*. Scientists and technicians from the Galápagos National Park Directorate, Charles Darwin Foundation, and Jocotoco confirmed Wilson's discovery. We found adult rails at three separate locations, and we even found chicks, meaning that the rails are breeding. The Galápagos Rail is one of the 12 species that were to be reintroduced. With fewer invasive predators, the rails either returned from another island or came out of hiding.

Many other species are also rebounding. Floreana has the largest nesting colonies of the critically endangered Galápagos Petrel *(Pterodroma phaeopygia)*. The petrel colony at Cerro Pajas produced 154 fledglings in 2024, a strong increase from previous years. The endangered Medium Tree Finch *(Camarhynchus pauper)*, found only on Floreana, along with the Mangrove Yellow Warbler *(Setophaga petechia aureola)*, Galápagos Dove *(Zenaida galapagoensis)*, Dark-billed Cuckoo *(Coccyzus melacoryphus)*, and endemic land snails all recovered. The populations of the endemic Lava Lizards *(Microlophus grayii)* increased eightfold.

The Galápagos National Park Directorate plans to release 164 juvenile Floreana Giant Tortoises *(Chelonoidis niger)* in February 2026. These tortoises, endemic to Floreana, were once thought to be extinct until their rediscovery on Isabela Island. Jocotoco's control of invasive predators is crucial for this release to occur.

Local Leadership — Rewilding Floreana Is Led by Galapagueños

This groundbreaking rewilding effort is being led locally. Jocotoco's entire team working on Floreana live on the Galápagos Islands and almost all of them grew up on the Galápagos. Our program director, Eliécer Cruz, grew up on Floreana itself. Local leadership builds trust with communities. All 150 residents of Floreana have signed on to the project, and they have already seen the benefits. Farmers on Floreana used to see up to 90% of their crops eaten by rats and mice. Now, crop losses are nearly zero.

Using Advanced Technology to Stop Future Invasive Predators

To ensure our progress is not lost, Floreana will become the world's first "Smart Island" to rapidly speed up detection and monitoring of invasive predators. We are creating a wireless network across Floreana that connects camera traps, trained sniffing dogs with GPS collars, staff GPS devices, and traps into one cloud system. With this system, if an invasive predator shows up near a Galápagos Petrel nesting colony, we will know immediately and take action quickly.

Floreana Island
Photo credit: Marlondag

The integration of the two connected pillars — local leadership and science — and our use of advanced technology, helps achieve international conservation priorities across the regions where it matters most.

Local leadership is the first and most essential ingredient. It begins on the ground — empowering park guards, investing in their professional growth, and enabling them to advance into ever more influential roles — with Jocotoco and in their communities.

Jocotoco's team is then strengthened by collaboration with world-class scientists whose independent validation expands our knowledge and sharpens our methods.

We then use technology to monitor and evaluate our impact. Technology allows us to expand beyond reserve boundaries into wider landscapes.

This model helps change the way communities relate to conservation.

In our Canandé Reserve, our recent surveys have shown that the reserve itself is home to more individuals of the critically endangered subspecies of Brown-headed Spider Monkey than previous estimates of their total global population. The expansion and protection of our reserve coupled with communal conservation programs made this possible.

Until five years ago in our Chakana Reserve, we rarely captured videos of Puma in our camera traps. Now Pumas roam daily in the reserve. Community partners, including Quito's water agency, are managing their nearby lands to restore the páramo ecosystem, knowing that a healthy páramo means cleaner and more abundant freshwater for Quito. These community actions improve wildlife habitat, which brings back prey for the Pumas, such as deer. These actions also create corridors of habitat, allowing Pumas to return.

One of our indigenous community partners in the Amazon region recently asked us to help them create a management plan for their communal reserve. They are doing this not because they want to sell the land, or raise money by protecting it, but because they want to be able to maintain that land as their legacy to future generations.

Jocotoco is spearheading outcome-based conservation. Together, you and I can ensure that our local leaders, threatened wildlife, and critical ecosystems can thrive despite headwinds.

Thank you,

Martin Schaefer, CEO
Fundación de Conservación Jocotoco

We are reintroducing a subspecies of Critically Endangered Great Green Macaws (*Ara ambiguus*) in the dry forests of western Ecuador where they were becoming extinct. The radio tag you can see in the photo allows us to trace their movements. The global population of this subspecies increased from just seven when we started reintroductions to at least 23.

Las Balsas Reserve
Photo credit: Afuera Producciones

GIVE TO PROTECT AND RESTORE THE ECOSYSTEMS THAT SUSTAIN US ALL

If you'd like to donate directly to Fundación Jocotoco, the conservation organization based in Ecuador, you can use the following bank information:

Fundación de Conservación Jocotoco
Bank: Banco Pichincha
Account (Cuenta): 3477081504
Taxpayer ID (RUC): 1791422678001

You can also lead conservation in Ecuador by donating to the Jocotoco Conservation Foundation, a not-for-profit in the US.

1. Go to Jocotoco's website and click donate: jocotoco.org
2. Scan this QR code to donate online.
3. Or mail a check payable to Jocotoco Conservation Foundation to P.O. Box 496, Garrett Park, MD 20896

We accept gifts of stock, donor advised funds, and qualified charitable distributions from your IRA. You can also join 'The Condors,' Jocotoco's Legacy Society, by adding Jocotoco to your estate plans and by including us in your will.

Please contact Jajean Rose, Executive Director of Jocotoco Conservation Foundation, at 1 (716) 247-1255 or jajean.rose@jocotoco.org if you have any questions about how to donate.

Cerro de Arcos Reserve
Photo credit: Afuera Producciones